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VOLUME III NUMBER 8.

Bulletin No 32

WEST VIRGINIA

Agricultural Experiment Station

MORGANTOWN, W VA.

CATALOGUE

OF

West Virginia Forest and Shade Tree

INSECTS.

MAY, 1893.

CHARLESTON, W. VA.
MOSES W. DONNALLY, PUBLIC PRINTER.
1893.

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CATALOGUE

OF

WEST VIRGINIA FOREST AND SHADE TREE INSECTS.

Collected in 1890-1893, Including Injurious, Beneficial and other Insects Taken on or in Some Part of the Tree Examined.

By A. D. Hopkins.

INTRODUCTORY*.

The depredations by insects on certain forest and shade trees of West Virginia during the past three years have been such as to demand special investigation, with a view of finding the species responsible for the primary cause of the premature death of trees; also to discover, if possible, methods of repelling or destroying them.

Insects injurious and beneficial to the Yellow Locust, the Black Spruce and the Pines have claimed the greater share of my attention, yet at the same time, such insects as were found on or in other kinds of trees and shrubs were collected and their habits, so far as observed, noted.

These investigations have not, as yet, been sufficiently completed to justify a detailed report of the work and results; therefore this catalogue is sent out in advance of more popular bulletins on the subject to be issued at the end of another season's work.

This catalogue and the one preceding it on West Virginia Scolytidæ are issued in this form, and in small editions not for general distribution, but for those who may be interested in such records of original observation, on the habits and life histories of forest, shade and fruit tree insects

The species herein mentioned have been collected or bred by me during the past three years, and the reference to habits, dates, etc., are from my notes and records.

It is my intention to continue the study of the life histories of forest tree insects, and to publish from time to time supplements to these catalogues containing lists of additional species found, together with necessary corrections and revisions.

*See also introductory to Catalogue of W. Va., Scolytidæ Bulletin 31, 1893.

My time being devoted almost exclusively to the study of insects from an economic standpoint, I have little time for systematic study, except on the family Scolytidæ; therefore I shall, as heretofore, depend largely upon the authoritative specialists for determinations of species.

I desire, in this connection, to acknowledge the kindness of the following named persons who have made first determinations for me of species in orders and families in which they are specialists: Dr. C. V. Riley, Mr. L. O. Howard, Mr. William Ashmead, Mr. E A. Schwarz, of the Division of Entomology at Washington; Dr. G. H. Horn, of Philadelphia, Dr. W. J. Holland, of Pittsburg; Mr. W. H. Edwards, of Coalburg, W Va.; Prof C. H. Tyler Townsend, of Los Cruces, N. M.; and Oberforester W. Eichhoff, of Strassburg, Germany.

Exhibit Collections.

Two exhibit collections have been prepared during the past winter. One for the exhibit by the Association of Agricultural Colleges and Experiment Stations in the Agricultural Building; the other for the West Virginia Exhibit in the Forestry Building at the World's Columbian Exposition. The former consists of West Virginia Scolytidæ and some of their enemies, and contains 299 insects and 284 wood and bark specimens, showing character of damage to wood and bark of forest, shade, fruit trees, etc. The latter consists of West Virginia forest and shade tree insects and examples of their work in wood and bark, including 240 insects and 250 other specimens. The species numbered in heavy type in this catalogue are represented in this collection.

These exhibits, aside from indicating the character of work in Entomology carried on by the West Virginia Experiment Station are designed to call the attention of owners of timber and others, who are interested in the preservation of our forests, to the importance of earnest and careful investigations, with a view of becoming better acquainted with the habits and life histories of the insects which cause such great damage and loss.

Order COLEOPTERA; Family CARABIDÆ.

1. **Cychrus Ridingsii,** Bland.
   Collected under bark on spruce log.
   Adult September 2.
   Randolph county.

2. **Tachys nanus,** Gyll.
   Collected under bark on spruce log
   Adult September 1.
   Randolph county.

3 **Pterostichus adoxus,** Say.
   Collected under bark on decaying spruce stump.
   Adults September 1.
   Randolph county.

4. **Pterostichus honestus,** Say.
   Collected under bark on spruce log.
   Adult September 1.
   Randolph county.

5. **Platynus angustatus,** Dej.
   Collected under bark on spruce stump.
   Adults September 1; July 11.
   Randolph and Grant counties.

6. **Platynus sinuatus,** Dej.
   Collected under dead bark on spruce log.
   Adult September 1.
   Randolph county.

7. **Dromius quadricollis,** Lec.
   Collected under bark on spruce log.
   Adults March 30.
   Grant county.

8. **Chlænius tricolor,** Dej.
Collected under bark on Spruce log.
Adult September 1.
Randolph county.

Order COLEOPTERA; Family STAPHYLINIDÆ.

9. **Homalota** sp
With *Tomicus caelatus, Tomicus pini, Polygraphus, rufipennis* in Spruce and *Dendroctonus frontalis* in Pine.
Adults September 1, 22, 25; October 21, 22; April 14, 17; May 4, 30; July 13.
Randolph, Monongalia, Tucker, Wood and Pendleton counties.

10. **Quedius peregrinus,** Grav.
With Scolytids under spruce bark.
Adult August 29.
Randolph county.

11. **Xantholinus cephalus,** Say.
On bark of Black Spruce tree infested with Scolytids.
Adults March 29.
Tucker county.

12. **Baptolinus longiceps,** Fab.
With *Polygraphus rufipennis* in Spruce bark.
Adult September 1; March 28.
Randolph and Tucker counties.

13. **Olophrum obtectum,** Er.
Collected under Pine bark.
Adult October 17.
Wood county.

14. **Siagonium americanum,** Melsh.
With *Dryocoetes autographus* in Spruce bark, and *Dryocoetus n. sp.* in Birch bark.
Adults May 8; July 11. Larvæ May 8.
Tucker and Grant counties.

Order COLEOPTERA; Family PHALACRIDÆ.

15. **Olibrus bicolor,** Gyll.
Adults in Spruce bark and on Locust leaves. Larvæ in Ergot on grass.
Adults March 10; July 9; August 29; May 21. Larvæ July 9.
Wood, Randolph and Gilmer counties.

Order COLEOPTERA; Family CORYLOPHIDÆ.

16 **Sacium biguttatum**, Lec.

Under bark on dead Beech.

Adults August 22.
Tyler county.

Order COLEOPTERA; Family COCCINELLIDÆ.

17. **Hippodamia convergens**, Guer.

PREDACEOUS.

Attacks Aphids on Apple and Locust

Adults July 17, 20; August 8, 24, 25; September 7; October 4; May 4.
Wood, Monongalia, Marshall, Brooke, Tucker and Jackson counties.

18 **Coccinella 9-notata**, Hbst.

PREDACEOUS.

Attacks Aphids on Locust and Apple.

Adults April 17, 18; June 24; July 2, 11, 17, 20, 30; October 3.
Webster, Wood, Marshall, Monongalia, Randolph, Cabell and Wirt counties

19. **Coccinella sanguinea**, Linn.

PREDACEOUS.

Attacks Aphids on Cherry, Locust and Apple.

Adults June 25, 26; July 7; August 7; September 7; October 4.
Monongalia, Wood and Upshur counties.

20. **Adalia bipunctata**, Linn.

PREDACEOUS.

Attacks Aphids on Locust, Box Elder, Apple and Balm of Gilead.

Adults June 1, 11; July 16, 20; August 1, 7; September 7. Pupæ June 1. Larvæ June 1.
Hancock, Cabell, Monongalia and Marshall counties.

21. **Anatis 15-punctata**, Oliv.

PREDACEOUS.

Attacks Aphids on Box Elder.

Adults April 27; June 11; July 21. Pupæ June 11. Larvæ June 11.
Monongalia, Wood and Wetzel counties.

Order CLEOPTERA; Family ENDOMYCHIDÆ.

22. **Endomychus biguttatus**, Say.
With Scolytids under Pine bark.
Adults October 15; December 6.
Marion and Monongalia counties.

Order COLEOPTERA; Family COLYDIIDÆ.

23. **Coxelus guttulatus**, Lec.
Under dead bark on Beech and Pine.
Adults May 6; July 22.
Hampshire and Tyler counties.

24. **Aulonium parallelopipedum**, Say.
Under bark on dead Beech and Black Oak.
Adults July 30; August 22.
Tyler and Wood counties.

25. **Aulonium tuberculatum**, Lec.
With Scolytids in Pine bark.
Adults July 13.
Hampshire county.

26. **Colydium lineola**, Say.
PREDACEOUS.
With *Platypus quadridentatus* in sap wood of Black Oak; *Xyloterus politus* in Maple; *Monarthrum mali* in Jack Oak; in Scolytid mines in Pine bark.
Adults July 13, 29, 30; August 19, 27; September 12
Hampshire, Wayne, Tyler, Monongalia and Wood counties.

27. **Sosylus costatus**, Lec.
PREDACEOUS.
With *Platypus quadridentatus* in Black Oak.
Adult July 29.
Wayne county.

28. **Philothermus glabriculus**, Lec.
With Scolytids under Spruce bark.
Under dead Locust bark.
Adults August 29; October 11.
Randolph and Monongalia counties.

Order COLEOPTERA; Family CUCUJIDÆ.

29. **Silvanus planatus**, Germ.
Under bark on dead Yellow Locust.
Adults March 18.
Wood county.

30. **Catogenus rufus**, Fab.
Under bark on dead Sugar Maple.
Adults April 12.
Monongalia county.

31. **Cucujus clavipes**, Fab.
Under bark on dead White Oak.
Adults February 25.
Preston county.

32. **Dendrophagus glaber**, Lec.
Under bark on Spruce log.
Adults September 1.
Randolph county.

33. **Brontes dubius**, Fab.
Under bark on dead Locust.
Adults April 9.
Wood county.

Order COLEOPTERA; Family MYCETOPHAGIDÆ.

34. **Litargus 6-punctatus**, Say.
Under bark on dead Beech.
Adults April 17.
Wood county.

35. **Diplocoelus brunneus**, Lec.
Under bark on dead Beech.
Adults August 22.
Tyler county.

Order COLEOPTERA; Family HISTERIDÆ.

36. **Hololepta fossularis**, Say.
Under bark on dead and dying Populus, Hickory and Locust.
Adults April 5; June 13; August 8; October 11; Eggs October 11.
Wood county.

37. **Hister parallelus**, Say.

With *Dryocoetes autographus* in Spruce. *Tomicus Cacographus* and *Gnathotrichus materiarius* in Pine

Adults May 18; June 24, 29; July 20; November.
Monongalia, Wood and Marshall counties.

38. **Hister cylindricus**, Payk.

With *Tomicus cacographus* and *Tomicus calligraphus* in Pine bark.

Adults, May 5, 8; August 12.
Wood and Pendleton counties.

39. **Paromalius estriatus**, Lec.

Under Hickory and Black Oak bark.

Adults March; July 30; October 27.
Wood and Monongalia counties.

40. **Paromalus bistriatus**, Er.

With *Polygraphus rufipennis* in Spruce bark.

Adults July 11; August 30.
Randolph and Tucker counties.

41. **Paromalus difficilis**, Horn.

With *Polygraphus rufipennis* and *Dryocoetes affaber* in Spruce bark.

Adults July 8; August 28; September 1; Pupæ July 8.
Randolph county.

42. **Plegaderus transversus**, Say

With *Tomicus cacographus* in Pine bark.

Adults June 24, 29; July 20.
Wood and Marshall counties.

Order COLEOPTERA; Family NITIDULIDÆ.

43. **Colastus unicolor**, Say.

With *Pityophthorus confinis* and *Tomicus calligraphus* under bark on dead pine

Adults May 4.
Pendleton county.

44. **Epuræa avara**, Rand.

Under dead bark on Spruce logs.

Adult July 8.
Grant county.

45. **Epuræa truncatella**, Mann.
With *Polygraphus rufipennis* in Spruce bark.
Adults March 26; July.
Tucker and Grant counties.

46. **Prometopia 6-maculata**, Say.
Under bark on dead Beech.
Adults August 22.
Tyler county.

47. **Cryptarcha ampla**, Er.
With *Cyllene robiniæ* larvæ under bark on living Yellow Locust tree
Adults May 1
Wood county.

48. **Ips fasciatus**, Oliv.
With *Cyllene robiniæ* larvæ under bark on living Yellow Locust tree and *Xyloterus bivittatus* on Spruce log.
Adults March; April 5; May 1, 9
Wood county.

49. **Nitidulidæ larvæ.**
Ips fasciatus?
With *Xyloterus bivittatus* in Spruce wood; *Platypus compositus* in Bass wood. With *Cyllene robiniæ* larvæ in Locust bark on green tree.
Larvæ May 14; June 1; July 9, 21.
Wood and Grant counties.

50. **Ips sanguinolentus**, Oliv.
With *Xyloterus politus* under Sugar Maple bark; also feeding on Black Walnut sap.
Adults April 5; May 9.
Wood and Grant counties.

51. **Rhizophagus dimidiatus**, Mann.
With Scolytids under Spruce bark.
Adults March 26; September 1.
Randolph and Tucker counties.

52. **Rhizophagus bipunctatus**, Say.
Under bark on dead Beech with *Monarthrum fasciatum* and with *Dryocoetes n. sp.* in Birch bark.
Adults March 21; April 18; October 21.
Wood, Pendleton and Monongalia counties.

Order COLEOPTERA; Family LATHRIDIIDÆ

53 **Latridius maculatus**, Lec.
Under bark on dead Beech.
Adults October 21.
Wood county.

54. **Latridius opaculus**, Lec.
Under bark on dead Beech
Adults October 21.
Wood county.

55. **Corticaria sp.**
On Yellow Locust leaves.
Adult May 21.
Wood county.

56. **Corticaria elongata**, Hum.
With *Tomicus calligraphus* under bark on Pine.
Adults July 27.
Wirt county.

Order COLEOPTERA; Family TROGOSITIDÆ.

57. **Nemosoma cylindricum**, Lec.
With *Tomicus cacographus* in Pine bark.
Adults May 20.
Wood county.

58. **Trogosita virescens**, Fab.
Under bark on dead and dying White and Yellow Pine trees.
Adults May 4; July 20.
Marshall and Hampshire counties.

59. **Tenebrioides corticalis**, Melsh
Under bark on dead Apple tree, and with *Phloeotribus frontalis* in bark of live Mulberry.
Adults September 7. Pupæ April 25. Adult emerged May 12.
Monongalia and Wood counties.

60. **Tenebrioides castanea**, Melsh.
Under bark on dead Beech.
Adults August 22.
Tyler county.

61. **Bactridium ephippigerum**, Guer.

Under partly green bark on Basswood log, and under bark on dead Beech

Adult April 17; July 21.
Wetzel and Wood counties.

Order COLEOPTERA; Family ELATERIDÆ.

62. **Tharops ruficornis**, Say.

WOOD BORER.

In dead Beech wood and on bark of dead maple.

Adults May 27; June 16; July 10.
Grant, Randolph and Monongalia counties.

63. **Alaus oculatus**, Linn.

WOOD BORER.

In green Oak wood and in decaying wood.

Adults June 19. Larvæ May 8; March 10.
Wood county.

64. **Hemirhipus fascicularis**, Fab.

PREDACEOUS.

Larva attacks *Cyllene picta* larvæ in Mulberry wood.

Adults bred June 5; Larvæ April 9.
Wood county.

Order COLEOPTERA; Family BUPRESTIDÆ.

65. **Chalcophora campestris**, Say.

BARK BORER.

Said to infest dead and dry Sycamore, (Packard).

Adults flying May 18; June 10.

66. **Dicerca divaricata**, Say.

BARK BORER.

Attacks bark on dead Peach tree.

Collected Adults May 11; July 12; September 12.
Wood and Randolph counties.

67. **Dicerca obscura**, Fitch.

BARK BORER.

On dead Oak branch.

Adult May 18.
Wood county.

68. **Dicerca lurida**, Fab.

BARK AND WOOD BORER.

Said to attack Pig Nut Hickory (Harris).

Adult flying May 2.
Wood county.

69. **Buprestis rufipes**, Oliv.
Adult flying July 20, August 19.
Monongalia county.

70. **Buprestis lineata**, Fab.
Adult flying June 21.
Wood county.

71. **Melanophila fulvoguttata**, Harv.

BARK BORER.

Infests green bark on living, injured and dying Hemlock trees.

Adults March 31; May 9: June 16; July 17.
Upshur and Grant counties.

72. **Melanophila sp. a**

BARK BORER.

Collected on Spruce logs.

Adult June 21.
Randolph county.

73. **Anthaxia æneogaster**, Lap.

BARK BORER.

Infests bark on dying Hickory trees.

Adults April 23; May 21.
Wood county.

74. **Anthaxia viridicornis**, Say.

BARK BORER.

Infests dying Willow and Spruce?

May 4; June 25; August 30; September 11.
Wood and Randolph counties.

75. **Anthaxia flavimana**, Gory.

TWIG BORER.

Infests dying Plum branches.

Adult May.
Wood county.

76 **Chrysobothris femorata**, Fab.

BARK AND WOOD BORER.

Infests bark on logs, stumps, injured and dying trees; White Oak, Black Oak, Apple, Hickory, Maple, Basswood

Adults May 1, 15, 18, 20; June 16, 23; July 20, 27. Larvæ March 20 and November to April.
Wood, Grant, Wetzel, Upshur and Monongalia counties.

77. **Chrysobothris pusilla**, Lap. and Gory.

BARK BORER.

Collected on Spruce logs.

Adults September 1.
Randolph county.

78. Chrysobothris azurea, Lec.

BARK AND WOOD BORER.

Infests Pine Bark and wood on branches of dead trees

Adults May 3, 5, 15.
Wood, Hampshire and Grant counties.

79 **Acmæodera ornata**, Fab.
Adults flying June 16, 24.
Wood county.

80. **Acmæodera culta**, Web.

WOOD BORER.

Infests bark and wood of dead Hickory. Adults found on Locust leaves, Dandelion and Wild Rose Blossoms.

Adults May 18, 21; June 23; September 15.
Wood and Monongalia counties.

81. **Buprestid sp**, c.

On dead Hickory.

Adult July 24.
Monongalia county.

82. **Agrilus otiosus**, Say.

BARK BORER.

Infests bark on dead twigs and branches of Hickory, Black Walnut. Adults feed on Walnut and Hickory leaves.

Adults April 14, 23; May 15, 18, 21, 30; July 4, 16, 25.
Wood, Upshur, Calhoun and Monongalia counties.

83. Agrilus bilineatus, Web.

BARK BORER.

Infests green bark on stumps, living, injured and dying trees. May cause the death of trees. Infests White Oak, Black Oak and Chestnut.

84. **Agrilus fallax**, Say.

BARK BORER.

Infests bark and wood of dying branches on living and dying Hackberry.

Adults May 2.
Wood county.

85. Agrilus politus, Say.

BARK BORER.

Infests green bark on living Willow trees. May be the primary cause of death of young trees

Adults June 13, 27. Pupæ May 4; June 27 Larvæ May 5, 20.
Grant and Wood counties.

86. Agrilus egenus, Gory.

BARK BORER.

Larvæ infests bark on dead and dying branches on living and dying Yellow Locust trees; adults feeding on leaves, common.

Adults April 24; May 15, 18, 20, 21, 30; June 1, 13, 15, 16, 27; July 16. Pupæ May 20; Larvæ May 20.
Monongalia, Wood and Hancock counties.

87. **Agrilus sp. b.**

BARK BORER.

Infests green bark on White Oak stumps.

Adults April 29; June 25.
Wood county.

88. **Agrilus sp. c.**

BARK BORER.

Infests green bark on living and dead Dogwood.

Adult April 14
Wood county.

Order COLEOPTERA; Family LAMPYRIDÆ

89. **Lucidata atra**, Fab.

Under dead bark on Spruce and Apple trees.

Adults March 29; June 16; November 2.
Wood, Monongalia and Tucker counties.

90. **Ellychnia corrusca**, Linn.

Common on Spruce bark.

Adult March 29.
Tucker county.

91. **Chauliognathus pennsylvanicus**. De G.

PREDACEOUS.

Larvæ attacks *Ecdytolopha insiticina* (Locust Twig Borer) in Yellow Locust twig.

Larvæ September 17.
Monongalia county.

Order COLEOPTERA; Family MALACHIDÆ.

92. **Attalus scincetus**. Say.

With *Scolytus rugulosus* in Apple bark

Adult March 21.
Monongalia county.

Order COLEOPTERA; Family CLERIDÆ.

93. **Elasmocerus terminatus**, Say.

PREDACEOUS.

With *Sinoxylon basilare*, *Agrilus otiosus* and *Chramesus icariæ* in dead Hickory branches.

Adults flying June 22. Adults bred from Hickory April 23.
Wood and Monongalia counties.

94. **Cymatodera bicolor**, Say.

PREDACEOUS

With *Phlœosinus dentatus?* in Cedar bark.

Adult May 15.
Wood county.

95 **Cymatodera inornata**, Say.

PREDACEOUS.

In outer bark on green Pine. Probably attacks *Hymenopterous* insects.

Adult October 15.
Marion county.

96. **Clerus quadrisignatus**, Say. **var. nigripes**, Say.

PREDACEOUS.

With *Tomicus cacographus* and *Pityophthorus pullus* in Pine bark and with *Phlocosinus dentatus* in Red Cedar bark.

Adult May 4, 9
Grant county.

97. **Clerus sp. a.**

PREDACEOUS.

In pith of dead Sumach. Probably attacks *Adyncrus* sp

Adults bred April 20; June 25. Larvæ April 1.
Wood county.

98. **Thanasimus trifasciatus**, Say.

PREDACEOUS.

With *Polygraphus rufipennis* under Spruce bark.

Adult March 28; August 29. Larva March 28.
Randolph and Tucker counties.

99. **Thanasimus dubius**, Fab.

PREDACEOUS.

Attacks *Tomicus cacographus, Tomicus calligraphus Dendroctonus frontalis, Pityophthorus pullus, Pityophthorus tuburculatus, Pityophthorus sp. d.* in Pine bark; *Polygraphus rufipennis* in Spruce bark and *Hylesinus opaculus* in Elm bark.

Adults May 2, 8, 30; August; September 1; October 6; November; Larvæ March 28, 31; May 3; July 21, 30; August 29; September 7, October 6, 10, 21.
Randoph, Tucker, Hampshire, Monongalia, Grant and Wood counties.

100 **Clerus formicarius**, L.
Thanasimus formicarius, L

The European Bark Beetle Destroyer. Destructive to Scolytids in European coniferous forests One thousand live specimens of adults, larvæ and pupæ imported to America in October, 1892, by the West Virginia Experiment Station, ai led by owners of ine forests. First adults collected by me in Government forest of Pinus sylvestris near Hagenau, Elsace, Germany, August 29th, 1892. First adults set free in America, in Pine forests near Morgantown, West Virginia, on October 10th, 1892.

101. **Thaneroclerus sanguineus**, Say.

PREDACEOUS.

On Hemlock stump with *Xyloterus bivittatus*.

Adult May 8.
Grant county.

102. **Phyllobænus dislocatus**, Say.

PREDACEOUS.

Attacks *Polygraphus rufipennis* in Black Spruce and *Pityophthorus consimilis* in Sumach (Rhus glabra) and with *Scolytus rugulosus* in Apple bark.

Adults bred June 16, 20, 22; December 7.
Randolph and Monongalia counties.

103. **Chariessa pilosa**, Forst.

PREDACEOUS.

Under bark on dead Walnut and in dead grape vine.

Adults April 15; May.

104 **Enoplium quadripunctatum**, Say.

PREDACEOUS

Bred from dead Black Walnut branches.

Adult April 8.
Wood county

105. **Orthopleura damicornis**, Fab.

PREDACEOUS.

With Buprestid larvæ in Dry Hickory wood.

Adults July 27.
Wood county.

106. **Clerid larvæ, sp. a.**

PREDACEOUS.

With *Dendroctonus frontalis*, *Tomicus avulsus* and *Tomicus cacographus* larvæ in Pine bark.

Larvæ June 23, 29; October 14.
Wood county.

107. **Clerid larvæ, sp. b.**

PREDACEOUS

With *Polygraphus rufipennis*, larvæ in Spruce.

Larvæ July 23; March 26.
Tucker and Wetzel counties.

108. **Clerid larvæ, sp. c.**

PREDACEOUS

With *Phlœotribus liminaris* in Wild Cherry and *Scolytus rugulosus* in Apple bark.

Larvæ March 2; July 13.
Monongalia county.

109. **Clerid larvæ, sp. d.**

PREDACEOUS.

With *Scolytus rugulosus* in Apple bark; *Scolytus quadrispinosus* in Hickory bark and *Scolytus muticus* in Hackberry bark.

Larvæ March 2; July 20; October 7; November 23.
Marshall and Monongalia counties.

110 **Clerid larvæ, sp. e.**

With *Tomicus Pini* in Pine bark.

Larvæ July 20.
Marshall county.

111. **Clerid larvæ, sp. f.**

With Cerambycid larvæ in Black Walnut bark.

Larvæ March 2.
Monongalia county.

Order COLEOPTERA; Family PTINIDÆ.

112. **Xestobium squalidum,** Lec.

WOOD BORER.

Infests dead wood of Black Spruce.

Adults bred. Larvæ collected March 31; May 9.
Grant county.

113. **Ptilinus ruficornis,** Say

WOOD BORER.

Infests dead and dry wood where the bark has been removed on living trees, logs and stumps of Beech, Wild Cherry, Maple, Cultivated Cherry, Iron wood.

Adults Feb. 17; April 12; June 10, 25, 27; July 10, 17.
Wood, Monongalia and Grant counties.

114. Sinoxylon basilare, Say.

"POWDER POST" WOOD BORER.

Infests wood of dead Hickory and Mulberry.

Adults April 14, 23; May 4, 15, 22. Larvæ May 4; March 18.
Wood county.

115. **Bostrychus bicornis,** Web

WOOD BORER

Infests dead wood of Beech, Elm? Apple?

Adults July 16, 30; Aug. 20.
Hancock, Wayne, Monongalia and Wood counties.

116. Lyctus striatus, Melsh.

"POWDER POST" BEETLE.
WOOD BORER.

Infests seasoned wood of Hickory, Yellow Locust, Wild Cherry. Very injurious to stored handles, spokes, hoops, &c.

Adults bred Feb. 17, 29; June 23; July 7. Larvæ Jan. 1, 9.
Grant, Monongalia, Pocahontas and Marshall counties.

Order COLEOPTERA ; Family LYMEXYLIDÆ.

117. Hylecœtus? larva, sp a.

OAK TIMBER WORM.

Infests wood of White Oak Logs and trees. Cause "pin holes" in heartwood and sap wood Very injurious

Larvæ, Mar. 15.
Wood county.

118. Lymexylid larva, sp a.

WOOD BORER.
CHESTNUT TIMBER WORM.

Infests wood of living, injured and dead Chestnut trees and logs. Causes "pin holes" in wood.

Larvæ May 20; July 29.
Wood county.

119. Lymexylon, sp. a.

WOOD BORER.

Infests wood of dying Hemlock trees.

Adult bred. Larvæ April 1.
Marion county.

120. Lymexylon? larvæ sp. b.

WOOD BORER.

Infests wood of Magnolia logs. Causes "pin holes" in wood.

Larvæ July 21.
Marshall county.

121. Lymexylon(?) sp. c.

WOOD BORER.

Larvæ bore through the outer sap wood just beneath the surface and directly across the grain of the wood of large Aspen.

Adults bred April 1. Pupæ March 27; Larvæ August 10; November 7; March 27
Monongalia county.

Order COLEOPTERA; Family SCARABÆIDÆ.

122. Clœotus aphodioides, Ill.

Under bark on dead Chestnut Oak tree.

Adults July 30.
Wood county.

123. **Clœotus globosus**, Say.

Under bark on dead Black Oak.

Adults July 30.
Wood county.

124. **Macrodactylus subspinosus**, Fab.

ROSE BEETLE.
FOLIAGE FEEDER.

Infests Yellow Locust and many other forest and shade trees.

Adults May 30; June 12, 16, 23.
Wood and Monongalia counties.

125. **Lachnosterna fusca**, Froh.

MAY BEETLE.
FOLIAGE FEEDER.

Adults infest Oaks, Persimmon and many other forest and shade trees, occasionally defoliating large trees. Larvæ feed on roots of grass, &c. Common throughout the State.

126 **Lachnosterna hirticula**, Knoch.

MAY BEETLE.
FOLIAGE FEEDER.

Infests Oaks and other forest and shade trees. Defoliates large trees.

Adults in company with above species defoliating Oak forest in Greenbrier county June 15, as reported by Editor of "Greenbrier Independent."

127. **Valgus canaliculatus**, Fab.

Infests decaying wood of Pine and Peach stumps.

Adult Feb.
Wood county.

Order COLEOPTERA; Family SPONDYLIDÆ.

128 **Parandra brunnea**, Fab

Under bark on dead Beech.

Adults July 30.
Wayne county.

Order COLEOPTERA ; Family CERAMBYCIDÆ.

129. **Prionus laticollis**, Drury.

WOOD BORER .

Infests dead wood of Pine stumps, Roots of living Black Oak and wood of Oak logs?. Probably a destructive species.

Adults July 20; Aug; Pupæ June 20; Larvæ? June; Eggs July.
Upshur, Monongalia and Wood counties.

130. **Asemum moestum**, Hald.

WOOD BORER

Infests wood near base of stumps and dying Pine and Spruce trees. Hastens death of trees and decay of wood.

Adults April 20; May 8; June 21. Pupæ April 20; Larvæ April 20; September 2.
Wood and Randolph counties.

131. **Tetropium cinnamopterum**, Kirby.

BARK AND WOOD BORER.

Infests green bark and wood on injured and dying Black Spruce trees. Very injurious. Hastens death of trees and causes rapid decay of wood.

Adults March 31; July 9. Larvæ March 29; 31; July 7.
Grant and Tucker counties.

132. **Smodicum cucujiforme**, Say.

BARK BORER.

Under bark of dead Honey Locust, Beech and E m.

Adults June 25; July 16, 20.
Wood, Wetzel and Hancock counties.

133. **Phymatodes variabilis**, Fab

THE WHITE OAK PHYMATODES
BARK AND WOOD BORER.

Infests White Oak, (Packard.)

Adults flying May 9, 21; June 15, 16.
Wood and Harrison counties.

134. **Phymatodes dimidiatus**, Kirby.

BARK BORER

In bark of Spruce log.

Adults June 21, 23. Larvæ June 12.
Monongalia, Pendleton and Randolph counties.

135. Callidium antennatum, Newm.

WOOD BORER.

Infests wood of dying and dead Pine trees. Causes rapid decay of wood.

Adults collected May 3. Also bred later. Larvæ May 3 to 6.
Hampshire county.

136 **Chion cinctus**, Drury.

WOOD BORER.

Infests dead branches of Black Oak.

Adults June 16; Larvæ March 18; December 20.
Wood county.

137. **Eburia quadrigeminata**, Say.

WOOD BORER

On dead Beech and Elm. Probably infests these trees.

Adults July 17, 20, 22.
Wetzel, Tyler and Brooke counties

138. Elaphidion mucronatum, Fab.

WOOD BORER.

Infests dead bark and wood of Beech Green wood of living Sugar Maple and bark of Black Oak.

Adults collected July 14, 25; August 1, 19. Bred Larvæ November 26. Adults emerged later.
Wood, Webster, Cabell and Monongalia counties.

139. Elaphidion parallelum, Newm.

OAK PRUNER.
TWIG BORER.

Infests small, living branches of Black Oak, Jack Oak and Walnut. Causes the branches to break and fall

Adults January; February 2; March 13. Larvæ July 29; August 6.
Wood and Monongalia counties.

140. **Molorchus bimaculatus**, Say.

WOOD BORER

Infests dead twigs on living Black Walnut trees and dying wood of Dogwood.

Adults bred April 8, 14; Larvæ April 14.
Wood county.

141. **Purpuricenus humeralis**, Fab.
Collected on Oak leaves.
Adults collected June 23.
Wood county

142. **Batyle ignicollis**, Say.
Adults collected July 15.
Wood county.

143. **Cyllene pictus**, Drury.
WOOD BORER.
Infests dead branches and small trees, Mulberry and Hickory.
Adults April 9, 14; Pupæ April 9. Larvæ April 9.
Wood county.

144. Cyllene robiniæ, Forst.
THE LOCUST BORER.
Infests live bark and wood of healthy Yellow Locust trees. Very injurious and destructive. The primary cause of death of trees.
Adults August 25; Sept 16, 17. Larvæ May 1, 20.
Monongalia Mineral and Wood counties.

145. Arhopalus fulminans, Fab.
WOOD BORER.
Infests sap wood of Oak, Chestnut and Hemlock logs Causes large worm holes in outer wood. Hastens decay.
Adults April 18; May 12, 20; June 16; July 5, 24; Aug. 10.
Pupae April 18. Larvae 18. Eggs Aug. 10.
Wood, Calhoun and Monongalia counties.

146 **Xylotrechus colonus**, Fab
WOOD BORER.
Infests bark and wood of logs and dead trees of Black Oak, White Oak, Hickory, Chestnut, Ash, Elm. Hastens decay of wood.
Adults May 8, 11, 15, 20; June 25; July 3. Pupae April 23; Larvae April 12, 18.
Wood, Monongalia and Calhoun counties.

147. **Neoclytus luscus**, Fab.
BARK AND WOOD BORER.
Attacks dead Ash.
Adult Aug. 10. Eggs? Aug. 10.
Monongalia county.

148. **Neoclytus capræa**, Say.

WOOD BORER.

Infests saw logs and dying trees of Black Ash. Very injurious to saw logs, boring numerous holes through the wood

Adults emerging March 19; May 30. Pupæ March 20. Larvæ March 19, 20, 24.

Wood county.

149. **Neoclytus erythrocephalus**, Fab.

WOOD BORER

Mining in bark and sap wood of dying and dead trees. Infests Locust, Hickory, Oak, Persimmon, Maple, Elm, Willow, Peach Apple.

Adults May 1, 15, 19, 20, 21; July 14, 24; August 4; September 2 Pupæ March 18; May 1.

Wood, Monongalia, Tucker, Randolph and Kanawha counties.

150. **Clytanthus ruricola**, Oliv.

WOOD BORER

Infests dead Sugar Maple.

Adults April 12; June 15.

Harrison county.

151. **Distenia undata**, Oliv.

BARK AND WOOD BORER

Collected adult under loose bark on dead Chestnut.

Adult July 25.

Wood county.

152. **Rhagium lineatum**, Oliv

BARK BORER.

Mining under bark of dying trees. Changing to beetle in chip, cocoons under bark. Infests pines.

Adults April 8; May 5, 9; Oct. 17; Dec. 19. Pupæ Oct. Larvæ July 14.

Common in pine forests.

153 **Monohammus scutellatus**, Say.

WOOD BORER

WHITE PINE "SAWYER."

Boring in sap and heart wood of saw logs, dying and dead trees. Cause large holes in wood. Hastens decay. Very injurious to timber. Infests White Pine.

Adults May 5; Larvæ June 23; Oct 10.

Pendleton and Marion counties.

154 **Monohammus confusor**, Kirby.

WOOD BORER.
SPRUCE SAWYER.

Boring large holes in saw logs and dying trees. Infests Black Spruce

Adults Aug. 29.
Randolph county.

155. **Monohammus marmorator**, Kirby.

WOOD BORER.
PINE SAWYER.

Boring large holes in saw logs, dying and dead trees. Infests Yellow, Pitch and Scrub Pines.

Adults July 12, 24.
Monongalia county,

156. **Dorcaschema nigrum**, Say.

Flying in Spruce forest.

Adult June 23
Pendleton county.

157. **Goes oculatus**, Lec.
Adult collected flying July 14.
Randolph county.

158. **Leptostylus aculiferus**, Say.

BARK AND WOOD BORER.

Infests dead and dying Apple and Maple trees.

Adults April 19; June 13, 18.
Monongalia and Wood counties.

159. **Liopus variegatus**, Hald.
Adult collected flying Oct. 3.
Monongalia county.

160 **Liopus alpha**, Say.

BARK AND WOOD BORER.

Infests Yellow Locust twigs on dead tree.

Adults bred April 24. Collected June 10.
Monongalia county.

161. **Liopus punctatus**, Lec.

WOOD BORER.

Infests dying and dead Plum and Dogwood.

Adults bred May 11, 20. Pupæ April 25; May 4.
Wood county,

162. **Lepturges signatus**, Lec.

BARK AND WOOD BORER.

Infests dead Beech branches.

Adults bred May. Larvæ April 12.
Monongalia county.

163. **Hyperplatys aspersus**, Say.

BARK AND WOOD BORER.

Infests dying and dead Sumach, Hackberry and White Walnut.

Adults bred April 23; May 2.
Wood county.

164. **Hyperplatys masculatus**, Hald

Collected on dead Maple and Yellow Locust branches.

Adults May 26; June 13.
Monongalia county.

165. **Urographis fasciatus**, De G.

BARK BORER.

Infests dying and dead Chestnut. Black Oak.

Adults June 11; July 24. Pupæ Sept. 12
Wood and Monongalia counties.

166. **Graphi surus pusillus**, Kirby.

Infests bark on dead Black Spruce.

Adults August 29; Sept. 2.
Randolph county.

167. **Ancanthocinus obsoletus**, Oliv.

Collected on Spruce stump. Bred from Pine bark

Adults collected July 9. Larvæ Nov 7.
Grant county.

168. **Hoplosia nubila**, Lec.

BARK BORER.

Infests bark on dead White Elm.

Adult May 15.
Wood county.

169. **Pogonocherus penicellatus**, Lec

WOOD BORER.

Infests sap wood of dying and dead Sumach.

Adult July 16.
Hancock county.

179. **Eupogonius vestitus**, Say

BARK AND TWIG BORER.

Infests White Walnut twigs.

Adults bred May 30.
Monongalia county.

171. Oncideres cingulata, Say

THE HICKORY TWIG GIRDLER.

Girdles the twigs and small branches on living trees. Larvæ develops in dead portion Infests Hickory, Basswood.

Adults July 22; October 29. Larvæ April 12.
Marion, Wood and Mason counties

172 **Saperda discoides**, Fab.

BARK BORER.

Infests bark on dead and dying Hickory.

Adults bred May 12 and 30. Pupæ April 30
Wood and Monongalia counties.

173. **Oberea tripunctata**, Swed.
var. Myops, Hald.
Adult collected flying July 15, 20.
Randolph and Webster counties.

174. **Oberea ruficollis**, Fab.
Adult collected on Blackberry fruit July 25.
Wood county.

175. **Cerambycid, sp. a**

BARK AND WOOD BORER

Infests bark and wood of dying Red Cedar.

Adults bred May 8.
Hampshire county.

Order COLEOPTERA; Family CHRYSOMELIDÆ.

176 **Anomoæ laticlavia**, Forst.

FOLIAGE FEEDER.

Collected on Yellow Locust leaves. Common also on Sumach leaves.

Adults June 10, 17; July 5.
Monongalia, Wood and Gilmer counties.

177 **Chlamys plicata**, Fab

FOLIAGE FEEDER.

Larvae and adults frequent on Sycamore leaves.

Adults April 17; May 11. Bred August 20. Larvae August 2.
Wood and Kanawha counties.

178 **Cryptocephalus mammifer**,*

FOLIAGE FEEDER.

Common on Yellow Locust leaves. Also collected on Blackberry and Raspbery leaves

Adults May 20, 21, 30; June 1, 13.
Monongalia and Wood counties.

179. **Pachybrachys atomarius**, Melsh.

FOLIAGE FEEDER.

Frequent on Yellow Locust leaves.

Adults June 16, 23, 26; July 16.
Wood, Upshur and Hancock counties.

180. **Glyptoscelis pubescens**, Fab.

Collected on Pine leaves.

Adults May 2.
Wood county.

181. **Myochrous denticollis**, Say.

Collected on Yellow Locust leaves

Adult April 19; May 5.
Wood county.

182 **Paria aterroima**, Oliv.

FOLIAGE FEEDER

Collected on Yellow Locust leaves. Common.

Adults May 18; June 10.
Wood county.

183. **Colaspis brunnea**, Fab.

FOLIAGE FEEDER.

Collected on Yellow Locust leaves June 27 Common on Grape leaves. Doing considerable damage.

Adults June 25, 27; July 16, 22.
Monongalia, Wood, Tyler and Hancock counties.

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*Determined by Dr. Horn.

184. **Colaspis tristis**, Oliv.
Collected on Yellow Locust and Blackberry leaves.
Adults June 16, 17; Aug. 24.
Wood county.

185. **Colaspis puncticollis**, Say.
Collected on Yellow Locust and Sumach leaves.
Adult June 1, 13; July 3, 30.
Wood, Wayne Monongalia and Wirt counties.

186 **Doryphora clivicollis**, Kirby.
Collected on Yellow Locust leaves.
Adults June 21.
Monongalia and Wood counties.

187 **Chrysomela saturalis**, Fab.
FOLIAGE FEEDER.
Collected on Yellow Locust leaves.
Adults April 5, 16, 17; Aug. 8.
Monongalia and Wood counties.

188. **Chrysomela scalaris**, Lec.
Collected on Mountain Ash leaf.
Adults June 23.
Randolph county.

189 **Chrysomela bigsbyana**, Kirby.
FOLIAGE FEEDER.
Common on Willow leaves.
Adults July 16, 30.
Wood and Upshur counties

190. **Gastroidea cyanea**, Melsh.
FOLIAGE FEEDER.
Collected on Willow leaves.
Adult May and June.
Wood county.

191. **Lina lapponica**, Linn.
FOLIAGE FEEDER.
Common on Willow leaves.
Adults April 12, 17, 29; May 2, 4; June 16. Eggs May.
Wood and Upshur counties.

192. **Phyllodecta vulgatissima**, Linn.
FOLIAGE FEEDER.
Very common on Black Willow leaves; eating surface of leaves
Adults, Larvæ and Pupæ June 16; Aug 27
Randolph county.

193. **Cerotoma caminea**, Fab.

Collected feeding on sap flowing from wounds in green bark made by *Cyllena robiniæ* larvæ on Yellow Locust.

Adults May 1; June
Wood county.

194. **Phyllechthrus gentilis**, Lec.

FOLIAGE FEEDER.

Very common on Yellow Locust leaves.

Adults May 21, 30; June 1, 12, 13.
Monongalia and Wood counties.

195. **Adimonia cavicollis**, Lec.

FOLIAGE FEEDER.

Common on Wild Red Cherry leaves. Defoliating trees.

Adults common July 10.
Tucker county.

196. **Blepharida rhois**, Forst.

FOLIAGE FEEDER.

Collected on Sumach.

Adults April 11, 18.
Wood county.

197. **Crepidodera rufipes**, Linn.

FOLIAGE FEEDER.

Common on Yellow Locust leaves.

Adults April 30; May 11, 18, 21, 24, 30; June 13, 16.
Wood, Upshur, Monongalia and Tucker counties.

198. **Crepidodera Helxines**, Linn.

FOLIAGE FEEDER.

Common on Willow and Wild Red Cherry leaves.

Adults May 23; July 10.
Wood and Tucker counties.

199. **Orthaltica copalina**, Fab.

FOLIAGE FEEDER.

Common on Sumach leaves Collected on Yellow Locust leaves.

Adults June 10; July 14.
Monongalia and Randolph counties.

200. **Odontota dorsalis**, Thumb.

ADULT FOLIAGE FEEDER.
LARVÆ LEAF MINER.

Causes Yellow Locust leaves to turn brown as if scorched by fire Beetles feed on surface of leaves. Larvæ mine beneath surface of leaves and form blisters. Adults also observed feeding on Beech, Apple, Wild Cherry and Wisteria leaves. Very common.

Adults May 11, 18, 30; June 10, 12, 15, 16, 21, 22, 26, 27, 29; July 16, 20; Aug. 16; Sept. 14, 17; Oct 3. Pupæ June 26; July 6, 18. Larvæ June 4, 13, 29; July 4, 6; Aug. 8.
Monongalia, Wood, Hancock, Harrison, Upshur, Tyler, Preston and Tucker counties.

201. **Odontota nervosa**, Panz.

FOLIAGE FEEDER

Very common on Yellow Locust leaves; also feeds on Apple leaves.

Adults April 30; May 18, 21, 30; June 10, 13, 26, 27; July 16.
Monongalia, Wood, Hancock and Jackson counties.

202. **Coptocycla guttata**, Oliv.

Collected on Yellow Locust leaves.

Adults May 18.
Wood county.

Order COLEOPTERA; Family TENEBRIONIDÆ

203. **Centronopus calcaratus**,*

Collected on Hemlock log.

Adults June 16.
Upshur county.

204. **Hypophloeus cavus**, Lec.

With *Xyleborus celsus* in Hickory.

Adult July 22.
Tyler county.

*Determined by Dr. Riley.

205. **Hypophloeus parallelus**, Melsh.

With *Polygraphus rufipennis* in Spruce bark; *Tomicus cacographus*; *Tomicus pini*; *Dendroctonus frontalis*; *Cryphturgus pusillus* in Pine bark and *Chramesus icoriae* in Hickory bark.

Adults March 26; May 5, 18; June 24, 25, 29; July 8, 13, 14, 20, 24; Aug.; Nov. 7. Larvæ Aug. 12; Oct. 12.
Grant, Hampshire, Wood, Hardy, Monongalia, Pendleton, Randolph, Marshall and Tucker counties.

206. **Hypophloeus thoracicus**, Melsh.

With *Polygraphus rufipennis* in Spruce bark.

Adult Aug. 29.
Randolph county.

207. **Hypophloeus bicolor**, Melsh.

With *Xyleborus pubescens* in Chestnut wood and *Xyleborus fuscatus* in Black Oak wood.

Adult May 20; July 30.
Wood county.

208. **Hypophloeus sp. a.**

With *Xyleborus sp. a.* in Chestnut Oak wood.

Adult July 30.
Wood county.

209. **Tenebrionid larvæ.**

With *Polygraphus rufipennis* in Spruce bark.

Larvæ August 30.
Randolph county.

Order COLEOPTERA; Family MELANDRYÍDÆ

210. **Xylita lævigata**, Hellw.

WOOD BORER.

In sap-wood of dead spruce

Adults March 29.
Tucker county.

211. **Serropalpus barbatus**, Schall.

Adult collected on Black Spruce stump July 10
Tucker county.

Order COLEOPTERA; Family PYTHIDÆ.

212. **Pytho niger**, Kirby.

BARK BORER.

Infests bark on dying and dead White Pine and Black Spruce.

Adults in chip cocoons April 1; May 9.
Marion and Grant counties.

213. **Pytho americanus**, Kirby.

BARK BORER

Infests dying and dead bark on Pine logs and stumps. Common.

Adults February 20.
Wood county.

Order COLEOPTERA; Family MORDELLIDÆ.

214. **Tomaxia bidentata**, Say.

Collected on bark of dying Hickory tree.

Adult June 29.
Wood county.

Order COLEOPTERA; Family ATTLEABIDÆ.

215. **Attelabus nigripes**, Lec.

Collected on Sumach and Yellow Locust leaves.

Adults June 23, 27; July 3; August 16.
Wood, Wirt and Monongalia counties.

216. **Sitones flavescens**, Marsh.

On Locust leaves.

Adults June 27.
Wood county.

Order COLEOPTERA; Family CURCULIONIDÆ.

217. **Apion nigrum**, Hbst.

FOLIAGE FEEDER.

Very common, feeding on tender Yellow Locust leaves.

Adults May 18, 21, 25, 30; June 10. 12, 13, 16, 24, 27; July 16, 22, 30; September 10
Wood, Monongalia, Hancock, Jackson, Tyler and Wayne counties.

218 **Listronotus latiusculus**, Boh.

Under Red Cedar bark.

Adults March 10; April 17; May 21.
Wood county.

219. Pissodes strobi, Peck.

TWIG AND BARK BORER.
WHITE PINE WEEVIL.

Attacks the terminal twigs on small living trees, causing dwarfed and deformed trees, also infests bark on logs, and trunks of living and dying Pine and Spruce.

Adults June 27; July 8, 14, 24; Aug. 4; Oct 25. Pupæ June 23, 29; July 8, 13; Larvæ June 29; July 8, 11; Oct. 25; Nov. 30.
Randolph, Grant, Pendleton, Pocahontas, Hardy, Monongalia, Wood, Grant, Mineral and Hampshire counties.

220 **Hylobius abietes**.*

BARK BORER.

Collected on dying Pines.

Adults Apr l 19; May 18; July 14.
Wood, Hampshire and Monongalia counties.

221 **Otidocephalus chervolatii**, Horn.

Collected on Yellow Locust leaves.

Adult July 16
Hancock county.

222. **Magdalis olyra**, Hbst.

BARK BORER.

Common under and in bark on dead Hickory.

Adults bred April 14; May 12, 15. Pupæ April 23.
Wood county.

223 **Magdalis inconspicua**, Horn.

TWIG BORER.

Infests dead twigs on Black Walnut.

Adults May 13.
Wood county.

BARK BORER

Infests twigs on dead Hickory.

Adults bred Oct. 15.
Marion county.

*Determined by Dr. C. V. Riley.

224. **Anthonomus nebulosus**, Lec.

FRUIT WEEVIL

Infests Thorn fruits.

Adults June 16.
Preston county.

225. **Orchestes niger**. Horn.

Collected on Willow leaves.

Adults July 30.
Wayne county.

226. **Orchestes ephippiatus**, Say.

Collected on Willow leaves.

Adult July 30
Wayne county.

227. **Gymnetron teter**, Fab.

Collected on Yellow Locust leaves.

Adults June 24.
Wood and Harrison counties.

228. **Cryptorhynchus obliquus**, Say.

SUMACH ROOT BORER.

Infests base and roots of Sumach. Causes the death of the shrub Beneficial where Sumach "sprouts" are a pest.

Adults bred Jan. 2; July 13. Larvæ July 29; Oct. 15.
Marion and Wood counties.

229. **Cryptorhynchus ferratus**, Say.

BARK BORER.

Infests bark on dead Sassafras.

Adults June 27. Pupæ June 27. Larvæ June 27.
Wood county.

230 **Copturus binotatus**, Lec.

BARK BORER.

Infests bark on dying Sumach. Common.

Adults July 16; October.
Hancock, Marion and Monongalia counties.

231. **Balaninus caryatrypes**, Boh

CHESTNUT NUT WEEVIE.

Common in Chestnuts.

Larvæ November 13.
Monongalia county.

Order COLEOPTERA; Family BRENTHIDÆ.

232. **Eupsalis minuta**, Drury.

BARK BORER

Adults collected under loose bark on dead Black Oak, Beech, Elm.

Adults April; July 16, 22.
Wood, Hancock and Tyler counties.

Order COLEOPTERA; Family CALANDRIDÆ.

233. **Himatium conicum**, Lec.

BARK BORER.

Common in bark on logs and dead trees.

Adults March 26, 28; April 17; May 4; September 1.
Randolph, Tucker, Wood and Pendleton counties

234. **Cossonus platalea**, Say.

Under dead bark on White Walnut log.

Adults (dead) April 12.
Monongalia county.

235. **Cossonus corticola**, Say

Very common under dead bark on Pine and Spruce trees.

Adults April 1; June 24; July 13, 20, 24, 27; Aug. 12, Oct. 10.
Monongalia, Marion, Marshall, Wood and Hampshire counties.

Order COLYOPTERA; Family SCOLYTIDÆ.*

236. **Platypus quadridentatus**, Oliv.

TIMBER BEETLE.

Infests Black Oak and Chestnut.

237. **Platypus compositus**, Say.

TIMBER BEETLE.

Infests Black Oak, Sugar Maple, Chestnut, Basswood, Magnolia, Red Elm, Beech and Wild Cherry.

238. **Corthylus punctatissimus**, Zimm.

TIMBER BEETLE.

Infests Sassafras.

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*For further notes on species mentioned in this family—See Catalogue of West Va. Scolytidæ and their enemies, 1893.

239. Monarthrum fasciatum, Say.

TIMBER BEETLE.

Infests Pine, White Oak, Black Oak, Basswood, Beech and Hemlock.

240. Monarthrum mali, Fitch.

TIMBER BEETLE.

Infests Pine, White Oak, Black Oak, Red Oak, Jack Oak, Elm, Beech, Maple, Chestnut, Basswood, Honey Locust, Yellow Poplar (Tulip), Buckeye, Morello Cherry, Red Cedar and Hemlock.

241. **Gnathotrichus retusus**, Lec.

TIMBER BEETLE.

Infests White Pines; also other Pines.

242. Gnathotrichus materiarius, Fitch.

TIMBER BEETLE.

Infests Pines.

243. **Pityophthorus minutissimus**, Zimm.

BARK BEETLE.

Infests Black Oak, White Oak, Jack Oak, Chestnut Oak, Dogwood.

244. **Pityophthorus, sp. a.**

BARK BETTLE.

Infests White Pine; also other Pine.

245. Pityophthorus pullus, Zimm.

BARK BEETLE.

Infests Pines.

246. **Pityophthorus sp. b.**

BARK BEETLE.

Collected on bark of dead Maple.

247. Pityophthorus plagiatus, Lec.
Tomicus plagiatus, Lec.

BARK BETTLE.

Infests Pines.

248 **Pityophthorus sparsus**, Lec.

BARK BETTLE.

Infests White Pines; also other Pines.

249. **Pityophthorus cariniceps**, Lec.

TWIG BEETLE.

Infests Black Spruce.

250. **Pityophthorus confinis**, Lec.

BARK BEETLE.

Infests Pines.

251. Pityophthorus consimilis, Lec.

BARK BEETLE.

Infests Sumach and all of the species of the genus Rhus.

252. Pityophthorus hirticeps, Lec.

TWIG BEETLE.

Infests Black Spruce.

253. **Pityophthorus sp c.**

BARK BEETLE.

Infests Black Spruce.

254. **Pityophthorus lautus**, Eich.

BARK BEETLE.

Infests Pine.

255. **Pityophthorus puberulus**, Lec.

BARK BEETLE.

Infests Pine.

256. **Pityophthorus sp. d.**

TWIG BEETLE.

Infests Pines.

257. **Pityophthorus sp. e.**

TWIG BEETLE.

Infests Pine.

258. **Pityophthorus tuburculatus**, Eich.

BARK BEETLE.

Infests Black Spruce.

259. **Pityophthorus sp. f.**

TWIG BEETLE.

Infests Pine Twigs.

260. **Pityophthorus sp. g**

BARK BETTLE.

Infests White Pine; also other Pines

261. **Hypothenemus sp b.**

TWIG BEETLE.
Infests White and Black Walnut

262. **Hypothenemus sp. d.**

TWIG BETTLE.
Infests Pine (P inops.)

263 **Hypothenemus dissimilis**, Zimm.

TWIG BETTLE.
Infests Hickory.

264. **Hypothenemus sp. e.**

TWIG BETTLE.
Infests Hickory.

265. **Hypothenemus sp. f.**

TWIG BEETLE.
Infests Oak.

266. **Hypothenemus sp. g.**

TWIG BEETLE.
Infests White Oak.

267. **Xyloterus retusus**, Lec

TIMBER BETTLE.
Infests Large Aspen.

268. **Xyloterus bivittatus**, Kirby.

TIMBER BEETLE.
Infests Black Spruce, Hemlock.

269. **Xyloterus scabricollis**, Lec.

TIMBER BEETLE.
Infests Pine.

270. **Xyloterus politus**, Say.
Xyloterus unicolor, Eich.

TIMBER BEETLE.
Infests Beech, Black Oak, White Oak, Red Oak, Hemlock, Sugar Maple, Red Maple, Chestnut, Magnolia, Elm, Hickory, Ash, White Birch, Black Spruce.

271. **Xyleborus pyri**, Peck.

TIMBER BEETLE.
Infests Hemlock, Beech, Birch and Red Oak.

272. **Xyleborus, sp. a.**

TIMBER BEETLE.

Infests Cedar.

273. **Xyleborus obesus**, Lec.

TIMBER BEETLE.

Infests Black Oak, Beech and Hemlock.

274. **Xyleborus celsus**, Eich.

TIMBER BEETLE.

Infests Hickory.

275. **Xyleborus fuscatus.** Eich.

TIMBER BEETLE.

Infests Black Oak and Hichory.

276. **Xyleborus sp. b.**

TIMBER BEETLE.

Infests White Oak, Chestnut Oak, Black Oak, Jack Oak.

277. **Xyleborus, sp. c.**

TIMBER BEETLE.

Infests Jack Oak.

278. **Xyleborus, sp. d.**

TIMBER BEETLE

Infests Black Oak, Hickory and Chestnut.

279. **Xyleborus pubescens.** Zimm.

TIMBER BEETLE.

Infests White Oak, Chestnut, Black Oak, Buckeye, Magnolia, Basswood, Cultivated Cherry, Honey Locust, Jack Oak.

280. **Xyleborus, sp. f.**

TIMBER BEETLE.

Infests Pine.

281 **Dryocoetes autographus**, Ratz.
(*Dryocoetes septentrionis*, Mann.)

BARK BEETLE

Infests Black Spruce, Norway Spruce.

282. Dryocoetes, n sp

BARK BEETLE.

Infests Birch (White), and Red Wild Cherry.

283. **Dryocoetes affaber?**, Mann.

BARK BEETLE.

Infests Black Spruce.

284. **Dryocoetes granicollis**, Lec.

BARK BEETLE.

Infests Black Spruce.

285. Tomicus calligraphus, Germ.

BARK BEETLE.

Infests all of the Pines.

286. Tomicus cacographus, Lec.

BARK BEETLE.

Infests all of the Pines, Black Spruce, Norway Spruce.

287. Tomicus pini, Say.

BARK BEETLE.

Infests all of the Pines, Norway Spruce.

288. **Tomicus avulsus**, Eich.

BARK BEETLE.

Infests White and other Pines.

289. **Tomicus cælatus**, Eich.

BARK BEETLE.

Infests all of the Pines, Black Spruce Norway Spruce.

290. Scolytus quadrispinosus, Say.

HICKORY BARK BEETLE.

Infests Hickory.

291. Scolytus muticus, Say.

BARK BEETLE.

Infests Hackberry.

292. Chramesus icoriæ, Lec.

BARK BEELE.

Infests Hickory.

293. Polygraphus rufipennis, Kirby.

SPRUCE BARK BEETLE.

Infests Black Spruce.

294. **Phlœotribus liminaris**, Harr.

BARK BEETLE.

Infests Peach, cultivated Cherry, Wild Cherry.

295. **Phlœtribus sp. b**.

BARK BEETLE.

Infests Red Cedar.

296. Phlœotribus frontalis, Oliv.

BARK BEETLE.

Infests Mulberry.

297. Hylesinus aculeatus, Say.

ASH BARK BEETLE.

Infests Black Ash.

298. **Hylesinus opaculus**, Lec.

ELM BARK BEETLE.

Infests Elm.

299. **Phloeosinus dentatus**, Say.

CEDAR BARK BEETLE.

Infests Red Cedar.

300. Dendroctonus terebrans, Oliv.

BARK BEETLE.

Infests all of the Pines.

301. Dendroctonus frontalis. Zimm.

Infests all of the Pines, Black Spruce, Norway Spruce.

302. **Crypturgus pusillus**, Gyll.
Crypturgus atomis, Lec.

BARK BEETLE.

Infests Pines, Black Spruce, Norway Spruce.

303. **Hylastes sp.**

BARK BEEETLE.

Infests Pines.

304. **Hylurgops glabratus**, Zett.,
(*Hylurgops pinifex*, Fitch.)

BARK BEETLE.

Infests the Pines.

Order COLEOPTERA; Family ANTHRIBIDÆ.

305. **Eusphyrus Walshii**, Lec.
Infests dead branches on Yellow Locust.

Adults bred April 24.
Monongalia county.

306. **Cratoparis lunatus**, Fab.
Common on fungus on and under bark of dead trees.

Adults Feb.; April 13, 17; May 9.
Wood county.

Order HYMENOPTERA; Family TENTHREDINIDÆ.

307. **Nematus robiniæ**, Forbes
FOLIAGE FEEDER
Feeding on leaves. Infests Yellow Locust.

Larvæ May 18, 21.
Wood and Jackson counties.

308. **Nematus sp. a.**
FOLIAGE FEEDER.
Feeding on leaves. Infests Yellow Locust.

Larvæ May 30.
Monongalia county.

309. **Nematus sp. b.**
FOLIAGE FEEDER.
Feeding on leaves common. Infests Dogwood.

Larvæ July 12.
Randolph county.

310. **Lophyrus pinus rigida**, Nort.
FOLIAGE FEEDER.
Feeding on leaves. Infests *pinus rigida.*

Larvæ May 20.
Wood county.

Order HYMENOPTERA; Family UROCERIDÆ.

311. **Xiphydria albicornis**, Harris.

WOOD BORER.

Females taken ovipositing in bark of dead Maple.

Adults June 2; July 7.
Monongalia county.

312 **Urocerus abdominalis**, Harris.

WOOD BORER.

Grub enters sap and heartwood of dying trees. Infests Pine, Spruce.

Adults July 25; Aug. 30.
Randolph county.

313. **Urocerus albicornis**, Fabr.

WOOD BORER.

Larvæ enters green sap and heart wood of injured and dying trees. Infests Hemlock.

Adult July 17.
Monongalia county.

314. **Urocerus cyaneus**, Fabr.

WOOD BORER.

Larvæ bore in green and dead wood of logs and dying trees. Infests Black Spruce.

Aug. 29; Sept. 1.
Randolph county.

315. **Urocerus sp. a**

WOOD BORER.

Flying in Spruce forest.

Adult Sept. 1.
Randolph county.

316. **Uroerus sp. b.**

Ovipositing in bark on living Yellow Pine.

Adults Oct. 21.
Mononongalia county.

317. **Tremex columba**, Linn.

WOOD BORER.

Larvæ bores in green wood of diseased and dying trees. Hastens death of trees. Infests Maple, Beech.

Adults Aug. 20; July 14; Oct. 21.
Monongalia county.

Order HYMENOPTERA; Family CYNIPIDÆ.

318. **Callirhytes pattoni**, Bass.

GALL FLY.

Causes wooly galls on White Oak twigs.

Adults bred. Galls collected March 16.
Preston county.

319. **Neuroterus noxiosus**, Bass.

GALL FLY.

Causes galls on Oak twigs.

Adults April 1. Larvæ Feb. 20.
Wood county.

320. **Neuroterus, sp.**

GALL FLY.

Causes galls on Oak twigs.

Adults February 24. Larvæ December 24.
Wood county.

321. **Ceroptres, sp.**

GALL FLY.

Causes galls on Oak twigs.

Adults February 20.
Wood county.

322. **Synergus lignicola**, O. S.

GALL FLY.

Causes large woody galls on Scarlet Oak twigs and branches.

Adults. Larvæ April 12
Upshur county.

Order HYMENOPTERA; Family EVANIIDÆ

323. **Aulacus abdominalis**, Cress.

BARK BORER.

Bred from Hemlock bark. Infested by *Melancphila fulvaguttata*.

Adults July 24. Bred Adults April 13; May 15; June 15.
Grant and Monongalia counties.

Order HYMENOPTERA; Family ICHNEUMONIDÆ.

324. **Adelognathus briviceps**, Ashm. n. sp

PRIMARY PARASITE.

Bred from Saw Fly larvæ. *Nematus sp. a.* on Yellow Locust leaf.

Adults May 30.
Monongalia county.

325. **Rhyssa albomaculata**, Cress.

PRIMARY PARASITE.

Emerging from dead Spruce tree infested by *Unocerus cyaneus*.

Adults July 9; Sept. 1.
Randolph and Wood counties.

326. **Thalessa atrata**, Fabr.

PRIMARY PARASITE.

Females taken with ovipositors inserted in wood infested by *Tremex columba* in dying Beech.

Adults June 20; July 14, 29. Pupæ Feb. 15. Larvæ Oct. 21.
Webster, Tucker and Wood counties.

327. **Thalessa lunator**, Fabr.

PRIMARY PARASITE.

Females taken with ovipositor inserted in wood infested by *Tremex columba* larvæ.

Adults March 1; July 29. Pupæ Feb. 15. Larvæ Oct. 21.
Wood county.

328. **Thalessa nortoni**, Cress.

Female taken with ovipositor inserted in Spruce log. No trace of larvæ of any kind could be found in the wood of the log.

Adult July 7.
Grant county.

329. **Ephialtes gigas**, Walsh.

Collected on bark of dead Hickory and Chestnut infested by *Longicorn* and *Buprestid* larvæ.

330. **Pimpla conquisitor**, Say.

PRIMARY PARASITE.

Attacks Lepidopterous larvæ on Buckeye leaves.

Adults bred June 15.
Monongalia county.

331. **Pimpla inquisitor**, Say.

PRIMARY PARASITE.

Attacks *Orgyia leucostigma* on Maple.

Adults bred Jan. 1; Feb. 24; Oct. 2; Nov 13.
Monongalia county.

332. **Glypta leucozonata**, Ashm.

PRIMARY PARASITE.

Attacks Lepidopterous larvæ on Sumach leaves.

Adults bred Oct. 24.
Monongalia county.

333. **Euxorides americanus**, Cress.

Collected on bark on dying Pine tree infested by Scolytid and Cerambycid larvæ.

Adults June 23.
Pendleton county.

334 **Xylonomus albopictus**, Cress.

PRIMARY PARASITE.

Attacks Buprestid larvæ and Agrilus larvæ in Beech bark.

Adults bred July 7, 27.
Tucker and Wood counties.

335. **Xylonomus insularis**, Cress.

Collected on Hemlock bark infested by *Melanophila fulvoguttata*.

Adults July 12.
Grant county.

Order HYMENOPTERA; Family BRACONIDÆ.

336. **Bracon aguili**, Ashm.

PRIMARY PARASITE.

Attacks *Neoclytus erythrocephalus* larvae in Hickory and Cerambycid larvae in Apple and Sassafras.

Adults May 8, 18; July 20; Sept. 14. Bred Pupae and cocoons April 15, 25. Adults emerged May 8, 18.
Monongalia and Wood counties.

337. **Bracon eurygaster**, Brulli.

PRIMARY PARASITE.

Attacks Cerambycid larvæ in Elm.

August 4.
Kanawha county.

338. **Bracon mavoritus**, Cress.

PRIMARY PARASITE.

Attacks *Tetropium cinnamopterum* in Spruce wood.

Adults bred Feb. 24; April 20; July 8. Larvæ Dec. 24.
Monongalia county.

339. **Bracon pectinator**, Say.

PRIMARY PARASITE.

Attacks *Melanophila fulvoguttata* larvæ in Hemlock, *Chrysobothris femorata* in Oak and Cerambycid larvæ in Black Spruce and Elm.

Adults bred March 30; April 20; July 12; Aug. 6. Larvæ March 30, 31 Cocoons April 9; July 24.
Grant, Wood and Tucker counties.

340. **Bracon pirsodis**, Ashm.

PRIMARY PARASITE.

Attacks *Dendroctonus frontalis* in Pine Bark. No. 82 Catalogue W. Va. Scolytidae, 1893.

341. **Bracon simplex**, Cress.

PRIMARY PARASITE.

Attacks Buprestid and Cerambycid larvae in Beech and Spruce bark.

Adults Aug. 29 to Sept. 1; July 7.
Randolph and Grant counties.

342. **Bracon sp. a.** Larva.

PRIMARY PARASITE.

Attacks *Asemum moestum* larvæ in Black Spruce bark.

Larvae July 7.
Grant county.

343. **Bracon sp. b.** Larva.

PRIMARY PARASITE.

Attacks *Melanophila fulvoguttata* in Hemlock bark.

Larva March 29.
Tucker county.

344. **Phanomeris sp.**

PRIMARY PARASITE.

Attacks Lepidopterous leaf roller larva on locust leaves.

Adult bred from cocoon Aug. 8
Monongalia county.

345. **Rhysipolis biformis** Ashm.

PRIMARY PARASITE.

Attacks Cerambycid and Buprestid larvæ in bark of Spruce.

Adults March 31. Bred cocoons Sept. 1. Adults Sept. 14.
Monongalia and Grant counties.

346. **Rhyssalus pityophthori**, Ashm.
With Pityophthorus sp d. in Pine bark. No. 83 Catalogue W. Va. Scolytidæ 1893.

347. **Spathius brachyrus**, Ashm.
PRIMARY PARASITE.
Attacks *Pissodes strobi* in Pine and *Dryocoetes autographus* in Spruce.
Bred Adults Sept. 28; Nov. 10. Cocoons March 15. Adults emerged April 6.
Wood and Monongalia counties.

348. **Spathius brunneus**, Ashm.
PRIMARY PARASITE.
Attacks *Scolytus muticus* in Hackberry bark. No 91, Catalogue W. Va. Scolytidæ 1893.

349. **Spathius claripennis**, Ashm.
PRIMARY PARASITE.
Attacks *Polygraphus rufipennis* in Spruce bark. No 84, Cat. W. Va. Scolytidæ 1893.

350. **Spathius canadensis**, Ashm.
PRIMARY PARASITE.
With *Phloeosinus dentatus*, in Red Cedar; *Tomicus cacographus* in White Pine and *Agrilus otiosus* in Hickory bark.
Adults March 31; April 14, 18, 23, 29; May 10.
Wood county.

351. **Spathius pollidus**, Ashm.
PRIMARY PARASITE
Attacks *Tomicus cacographus* in Pine bark. No. 89 in Catalogue West Virginia Scolytidæ 1893

352. **Spathius simillimus**, Ashm.
PRIMARY PARASITE.
Attacks Buprestid larvae and *Chrysobothris pusilla* in Spruce. *Cryptorhynchus ferratus* in Sassafras, *Agrilus bilineatus* in Oak.
Cocoons March 26, 29, 31; May 2, 4. Adults May 1, 18, 25; April 25.
Grant, Tucker and Wood counties.

353. **Spathius tomici,** Ashm.

PRIMARY PARASITE.

Attacks *Dryocoetes autographus* in Spruce No. 90 in Catalogue West Va. Scolytidae 1893.

354. **Spathius unifasciatus.** Ashm.

PRIMARY PARASITE.

Attacks *Scolytus quadrispinosus* in Hickory bark. No. 85 Catalogue W. Va. Scolytidae

355 **Spathius, sp.**

PRIMARY PARASITE.

Attacks Buprestid larvae in Elm bark.

Bred cocoons April 13. Adult April 14
Wood county.

356. **Lysitermus scolyticida,** Ashm.

Attacks *Scolytus 4-spinosus* in Hickory bark. No. 92 Catalogue West Va Scolytidae, 1893.

357. **Lysitermus (?) sp.**

Attacks *Tomicus Plagiatus* in Pine bark. No. 93 Catalogue West Va. Scolytidae, 1893

358 **Cænophanes anthaxia,** Ashm.

PRIMARY PARASITE.

Attacks *Anthaxia virdicornis* in Willow bark; Agrilus larvæ in Dogwood and Copturus binotatus in Sumach.

Bred cocoons April 14; May 4. Adults emerged May 24, 26.
Cocoons collected June 15. Adults bred Nov. 8.
Wood and Marion counties.

359. **Cænophanes pityophthori,** Ashm.

PRIMARY PARASITE.

Attacks *Pityophthorus sp. c.* and *Polygraphus rufipennis* in Spruce bark. No. 94. Catalogue West Va, Scolytidæ 1893.

360. **Cænophanes hylotrupidis,** Ashm.*

PRIMARY PARASITE.

Attacks Cerambycid larvæ in Cedar bark.

Bred adult April 4.
Wood county.

361. **Cænophanes sp.**

PRIMARY PARASITE.

Attacks *Agrilus egenus* in Yellow Locust bark.

Adults April 25. Cocoons March 16.
Monongalia county.

362. **Pambolus bifasciatus,** Asm. (n. sp.)†

PRIMARY PARASITE.

Attacks *Anthaxia virdicornis* in Willow bark.

Adults May 4; June 24.
Wood county.

363. **Doryctes erythromelas,** Brulle.

PRIMARY PARASITE.

Attacks Wood-boring larvae. Kind of wood not noted.

Bred Adult April 3
Wood county.

364. **Rhogas intermedius,** Cress.

PRIMARY PARASITE.

Attacks *Acronycta americana* on Maple.

Bred Adults Oct. 5. Collected Sept.
Monongalia county.

365. **Apanteles sp.**

PRIMARY PARASITE.

Attacks *Orgyia leucostigma;*

Adults bred in October.
Monongalia county.

366. **Microdus laticinctus,** Cress.

PARASITE.

Collected on Locust leaves infested by Lepidopterous and other larvae.

Adults May 20; July 16.
Wood county.

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*Described by Wm. H. Ashmead in Canadian Entomologist Vol. XXV. Page 78.
†Described by Wm. H. Ashmead in Psyche Vol. VI. Page 289.

367. **Perilitus gastrophysae**, Ashm.

PARASITE.

Collected on locust leaves infested with Lepidopterous, Coleopterous and other larvae.

Adult June 16.
Upshur county.

368. **Blacus longicandus**, Prov.

PRIMARY PARASITE.

Attacks *Lictus striatus* in dry Yellow Locust wood.

Adults June 23.
Pocahontas county.

369. **Helcon legator**, Say.

PRIMARY PARASITE.

With Scolytus Muticus and Agrilus larvæ in Hackberry bark.

Cocoons May 2. Adults bred.
Wood county.

370. **Helcon occidentalis**, Ashm (n. sp)*

PRIMARY PARASITE.

Attacks *Tetropium cinnamopterum* in Black Spruce wood.

Bred Cocoon July 8. Adult emerged July 14.
Grant county.

371. **Promachus rubiceps**, Ashm.

PRIMARY PARASITE.

With *Neoclytus erythrocephalus* and *Agrilus egenus* in Locust twigs.

Adults April 24.
Monongalia county.

372. **Diaspasta (Alysia) nibicunda**, Say.

PARASITE.

Collected on Locust leaves infested by Lepidopterous and other insects.

Adults September 14; June 27.
Monongalia county.

373. **Cosmophorus Hopkinsii sp. n.**, Ashm. MS.

Attacks *Polygraphus rufipennis* in Spruce bark. No 96 Catalogue W. Va. Scolytidæ, 1893.

*Described by Wm. H. Ashmead Canadian Entomologist, Vol. XXV., p. 78.

Order HYMENOPTERA; Family CHALCIDIÆ.

374. **Simcra canadensis**, Cress.

PRIMARY PARASITE.

Attacks *Magdalis olyra* in Hickory bark.

Bred—Larvae April 23. Adults emerged May 5.
Wood county.

375. **Perilampus hyalinus** Say.

PRIMARY PARASITE.

Attacks *Lyctus Striatus* in dry Yellow Locust wood.

Adults June 23.
Pocahontas county.

376. **Eurytoma auriceps**, Walsh.

PRIMARY PARASITE.

Attacks gall insect on oak.

Adults March 16.
Marion county.

377. **Eurytoma sp. d**

PRIMARY PARASITE.

Attacks *Tomicus plagiatus* in Pine bark. No. 101 Catalogue West Va. Scolytidæ 1893.

378 **Eurytoma sp. e.**

PRIMARY PARASITE.

Attacks *Phloesinus dentatus* in Red Cedar bark. No 102 Catalogue West Va. Scolytidae 1893

379. **Eurytoma sp. f.**

PRIMARY PARASITE.

Attacks *Polygraphus rufipennis* in Black Spruce bark. No. 103 Catalogue W. Va. Scolytidae 1893.

380. **Eurytoma sp. g.**

With *Agrilus otiosus* in Hickory bark.

Bred adult April 29.
Wood county.

381. **Eurytoma sp. h.**

PRIMARY PARASITE.

Bred from galls on White Oak twigs.

Adults May.
Wood county.

382. **?Diomorus Zabriskii**, Cr.

In Mines of Hymenopterous insect in outer Pine bark.

Adults May 3.
Hardy county.

383 **Torymus sp. a.**

Bred from galls on Willow and from Spruce bark infested with Scol tids.

Adults June 23.
Wood county.

384. **Lochites sp. a.**

PRIMARY PARASITE.

Attacks *Polygraphus rufipennis* in Spruce bark. No. 104 Catalogue West Va Scolytidæ 1893.

385. **Lochites sp. b.**

With Scolytids in Pine bark. No. 105 Catalogue West Va. Scolytidæ 1893.

386. **Lochites sp. c.**

Collected on Locust leaves with leaf gall and other insects

Adult May 30.
Monongalia county.

387. **Lochites sp d.**

PRIMARY PARASITE.

Attacks *Dendroctonus frontalis* in Pine bark. No. 106 Catalogue West Va. Scolytidæ 1893.

388. **Lochites sp. e.**

PRIMARY PARASITE.

Attacks *Tomicus cælatus* in Norway Spruce bark. No. 107 Catalogue W. Va. Scolytidæ, 1893.

389. **Eupelmus, sp. a.**

Bred from Hemlock bark infested with *Melanophila fulvoguttata* and *Aulacus abdominalis*.

Adults April 1.
Monongalia county.

390. **Pteromalus sp a.**

PRIMARY PARASITE.

Attacks *Cecidomyia robiniæ* in Yellow Locust leaf galls.

Adults May 21; September 18.
Monongalia and Jackson county.

391. **Pteromalus(?) sp. b.**

PRIMARY PARASITE.

Attacks *Phloesinus dentatus* in Red Cedar bark. No. 109 Catalogue W. Va Scolytidæ, 1893.

392. **Meraporus sp.**

SECONDARY PARASITE.

With *Pimpla inquisitor* pupæ in cocoons of *Orgyia leucostigma* on Maple.

Adults February 14; November 6.
Monongalia county.

393. **Gitognathus, sp. a.**

Common on Yellow Locust leaves infested with leaf galls *Cecidomyia robiniæ* and leaf miner *Odontota dorsalis*.

Adults May 20, 21, 25, 30.
Wood county.

394. **Gitognathus (?) sp. b.**

PRIMARY PARASITE.

Attacks *Odontota dorsalis* larvae in mines in Yellow Locust leaf.

Adults July 14
Monongalia county.

395. **Heydenia unica,** Cook.

Attacks *Dendroctonus frontalis* in Pine bark. No. 111 Catalogue West Va Scolytidae 1893.

396. **Metastenus acanthocini,** Ashm.

In Black Oak twig.

Adults March 29.
Wood county.

397. **Hippocephalus nulbilineatus**, Ashm.

PRIMARY PARASITE.

Bred from Pine leaves infested with leaf miner *Gelechia pinifoliella*.

Adults bred July 13; May 20.
Wood county.

398. **Spintherus sp.**

Attacks *Polygraphus rufipennis* in Spruce bark No. 112 Catalogue W. Va Scolytidæ 1893.

399. **Trigonoderus sp.**

Attacks *Polygraphus rufipennis* in Spruce bark. No. 113 Catalogue West Va. Scolytidæ 1893.

400. **Omphale bicinchis**. Ashm.

On Locust leaves infested by *Odontota dorsalis*.

Adults May 18.- June 26.
Wood county.

401. **Tetrastichus sp. a.**

SECONDARY PARASITE.

Attacks Thanasimus larvæ.

402 **Tetrastichus sp. c.**

SECONDARY PARASITE.

Bred from *Apantcles sp.*, cocoon on *Apatela Americana* (?) larvæ.

Adults Jan. 28.
Monongalia county.

403. **Tetrastichus sp. d.**

SECONDARY PARASITE.

Attacks *Pimpla inquisitor* in chrysalis of *Orgyia leucostigma*.

Adults bred Jan 10. Larvæ Nov. 13.
Marion county.

404. **Tetrastichus racemariæ**, Ashm.

Bred from Oak galls infested with *Neuroterus noxiosus*.

Adult Feb. 20.
Wood county.

405. **Trisholcas euschiste,** Ashm.

EGG PARASITE.

Bred from Hemipterous egg in Locust leaf.

Adults June 22, 27.
Wood county.

406. **Bruchophagus sp**

Collected on Yellow Locust leaves infested with *Odontota dorsalis.*

Adults May 30.
Wood county.

407. **Decatoma sp**

Collected on Spruce logs infested with *Polygraphus rufipennis.* No. 115 Catalogue W. Va. Scolytidae, 1893.

408. **Lathromeris scutellaris,** Ashm. MS.

EGG PARASITE.

Attacks Lepidopterous eggs on Wild Cherry twigs.

Adults bred September 27.
Monongalia county.

409. **Chalcid, (Genus Nov. ?)**

PRIMARY PARASITE.

Attacks adult *Pityophthorus minutissimus* in Oak bark. No. 114 Catalogue West Va Scolytidæ, 1893.

Order HYMENOPTERA; Family PROCTOTRUPIDÆ.

410. **Aphalonomia hyolinipennis,** Ashm.

With *Hypothenemus sp. b.* in White Walnut. No. 116 Catalogue West Va. Scolytidæ, 1893.

411. **Leptacis sp. a.**

Collected on Yellow Locust leaves.

Adults May 18
Wood county.

412. **Leptacis sp. b**

Collected on Locust leaves

Adults May 21.
Wood county.

Order HEMIPTERA; Sub-order HOMOPTERA, Family COCCIDÆ.

(Scale Insects.)

413. **Undetermined species.**
On Pine twigs.

413a. **Pseudococcus aceris** (?) Geof.
On Soft Maple and Yellow Locust.

413b **Pulvinaria innumerabilis.**
On Soft Maple and Yellow Locust.

414. **Undetermined species.**
On Yellow Locust.

Family APHIDIDÆ.

(Plant Lice.)

415. **Undetermined sp. a.**
On Hawthorn twigs

416 **Undetermined sp. b.**
On Box Elder twigs and leaves.

417. **Undetermined sp. c.**
On Yellow Locust twigs

418 **Undetermined sp. d.**
On Yellow Locust twigs.

419. **Pemphigus aceris**, Morell.
On Maple leaves.

420 **Pemphigus acerifolii**, Riley.
On Maple leaves.

421. **Undetermined sp. e.**
On Pine twigs.

422 **Undetermined sp. f.**
On White Pine leaves.

423. **Undetermined, sp. g.**
On Pine bark.

424. **Undetermined, sp h.**
On Balm of Gilead.

Family MEMBRACIDÆ.

(Tree Hoppers.)

425. **Thelia, sp. a.**

On Yellow Locust twigs feeding on sap.

Adults April 27; Aug. 8; Oct. 3.
Monongalia county.

426. **Thelia, sp. b.**

Adults and nymphs feeding on sap of Yellow Locust twigs.

Adults June 23, 27; July 16. Nymphs June 27.
Wood and Hancock counties.

427. **Tetamona (?) sp. a**

Collected on Yellow Locust leaves.

Adults June 27.
Wood county.

428 **Ceresa bubulus.**

Frequent on Yellow Locust leaves and twigs.

Adults May 18; June 26, 27.
Wood county.

429. **Amphiscepa bivittata**, Say.

Collected on Locust leaves and tender branches

Adults Aug. 8.
Monongalia county.

430. **Amphiscepa sp. a.**

Collected on Yellow Locust leaves.

Adults August 16; September 14.
Monongalia county.

431. **Amphiscepa sp. b.**

Collected on Yellow Locust leaves.

Adults September 14
Monongalia county.

432. **Enchenopa binotata.**

Common feeding on sap of tender twigs on Yellow Locust.

Adults June 24, 25, 26, 27; July 16; August 8 Nymphs June 26

433. **Ophiderma salamandra**, Fairm.

Common on tender twigs on Yellow Locust, feeding on sap and attended by ants.

Adults June 13, 27; August 19. Nymphs August 8, 19.
Monongalia county.

434. **Smilia sp.**

Collected on Yellow Locust leaves.

Adults June 27; October 4.
Monongalia county.

Family CERCOPIDÆ.

435. **Aphrophora quadrangularis.**

Collected on Yellow Locust leaves and tender twigs.

Adults October 4.
Monongalia county.

436 **Undetermined sp. a.**

SPITTLE INSECT

Common on Pine, Spruce, Hemlock and Balsam Fir.

June and July '93.
Pocahontas, Randolph and Greenbrier counties.

437. **Undetermined sp. b.**

SPITTLE INSECT.

Common on Black Spruce twigs.

Nymphs July 11.
Tucker county.

438. **Undetermined sp. c.**

Common on Yellow and Scrub Pine twigs.

Nymphs May 20.
Wood county.

Family JASSIDÆ.

439. **Undetermined sp a.**

On Yellow Locust leaves.

Adults June 13; Oct 4.
Monongalia county.

440. **Undetermined sp. b.**

Collected on Yellow Locust leaves.

Adults June 12.
Monongalia county.

441. **Undetermined sp. c.**

Collected on Yellow Locust leaves.

Adults June 24.
Wood county.

Order HEMIPTERA; Sub-order HETEROPTERA.

Family REDUVIIDÆ.

(Bugs.)

442. **Sinea diadema**, Fab.

Collected on Locust leaves

Adults May 18, 24.
Wood county.

Family PHYMATIDÆ.

443. **Phymata Wolffii.**

PREDACEOUS.

Common on Yellow Locust and other trees, feeding on insects.

Adults Aug. 9; Oct. 8.
Monongalia county.

444. **Phymata sp. a.**

PREDACEOUS.

Collected on Locust leaves.

Adults Aug. 8.
Monongalia county.

Family TINGITIDÆ.

445. **Corythuca arcuata.**

Common on under side of Sycamore leaves, feeding on juices of leaf. Causes leaves to turn yellow.

All stages June 10, 13.
Monongalia and Harrison counties.

Family CAPSIDÆ.

446. **Calocoris sp. a.**

Collected on Yellow Locust leaves.

Adults June 10.
Monongalia county.

447. **Calocoris rapidus**, Say.

Collected on Yellow Locust leaves.

Adults June 10; Aug. 8.
Monongalia and Harrison counties.

448. **Calocoris, sp. b.**

All stages very common on Yellow Locust leaves and tender twigs Probably feeding on their juices.

Adults June 1, 10, 24, 27; July 16. Nymphs June and July. Wood, Hancock and Monongalia counties.

449. **Calocoris, sp. c.**

Collected on Yellow Locust leaves.

Adult June 15.
Harrison county.

Family LYGÆIDÆ.

450. **Undetermined species a.**

Collected on Yellow Locust leaves.

Adults Aug. 8.
Monongalia county.

Family COREIDÆ.

451. **Acanthocephalina, sp. a.**

Collected on Yellow Locust leaves.

Adults Oct. 3
Monongalia county.

Family PENTATOMIDÆ.

452. **Acanthosoma nebulosa**, Kirby.

Collected on Yellow Locust leaves.

Adult June 10.
Monongalia county.

453. **Nizara hirlaris**, Say

Collected on Yellow Locust leaves.

Adults August 6.
Monongalia county.

454. **Podisus sp. a.**

PREDACEOUS.

Feeding on leaf roller larvæ on Yellow Locust leaf.

Adults June 10 in leaves. June 13, feeding on larvæ.
Monongalia county.

455. **Podisus? sp. b.**

PREDACEOUS.

Nymphs feeding on Aphids on Yellow Locust twigs.

Nymphs October 4.
Monongalia county.

456. **Podisus? sp e.**

PREDACEOUS.

Feeding on Geometrid larvæ and Yellow Locust leaves.

Adults August 7. Eggs May 22.
Monongalia county.

457. **Podisus spinosus**, Dallas.

PREDACEOUS.

Feeding on Orgyia leucostgma larvæ on Locust leaves

Adults September 18
Monongalia county.

Order LEPIDOPTERA.

Family HESPERIDÆ.

458. **Eudamus tityrus**, Fabr.

Larvæ common feeding on Yellow Locust leaves.

Adults May 4; June; Larvæ August; October 4; Eggs June, August.
Wood and Monongalia counties.

Family LIPARIDÆ

459. **Orgyia leucostigma**, S & A

Larvæ common feeding on Maple and frequent on Yellow Locust.

Pupæ June 28; Larvæ June 26; September 22.
Monongalia and Wood counties.

Family LIMACODIDÆ.

460. **Empretia stimulea**, Clem.

Larvæ feeding on Yellow Locust leaves, also Blackberry leaves.

Larvæ August 8.
Monongalia county.

461. **Limacodes sp.**

Larvæ feeding on Yellow Locust leaves.

Larvæ August 15.
Monongalia county.

Family PSYCHIDÆ

462. **Thyridopteryx ephemeræformis**, Steph
Observed Cocoons on Red Cedar.

Family SATURNIIDÆ.

463. **Attacus promethea**, Dru.
Larvæ common feeding on "Yellow Poplar" (Tulip Tree) Sassafras, Wild Cherry, and Persimmon leaves.
Adults June; Larvæ June; August 15.
Wood and Monongalia counties.

464. **Attacus angulifera**, Walk.
Larvæ observed feeding on leaves of Tulip tree.
Adults bred June 16 (1874.)
Jackson county.

465. **Attacus cecropia**, Linn
Larvæ frequent feeding on leaves of a variety of a forest shade and fruit trees. Observed on Maple, Persimon, Hickory, etc.

465*a* **Actias luna**, Linn.
Larvæ common on Hickory, Walnut and Sweet Gum.

466. **Telea polyphemus**, Cram.
Larvæ common feeding on Oak leaves. Taken also on Elm and Maple.
Adults August 2.
Fayette county.

467. **Hyperchiria io**, Fab.
Larvæ observed on Hickory and Maple.
Adults June 13.
Wood county.

Family CERATOCAMPIDÆ.

468. **Eacles imperialis**, Dru.
Larvæ common on Maple and Sycamore.
Adults July 31.
Monongalia and Kanawha counties.

469 **Citheronia regalis**, Fab.

Larvæ frequent feeding on leaves of Walnut, Hickory and Persimmon.

Adults June.
Monongalia county.

470 **Anisota senatoria**, S. & H

Larvæ common on Black and Scarlet Oaks, defoliating trees.

Adults July 12. Larvæ Sept. 10.
Wood county.

471. **Dryocampa rubicunda**, Fab.

Larvæ common feeding on Soft Maple leaves.

Family BOMBYCIDÆ.

472. **Hemileuca maia**, Dru.

Larvæ frequent feeding on White Oak leaves.

Adults October. Larvæ May 20.
Wood and Jackson counties.

Family COSSIDÆ.

473. Prionoxystus robiniæ? Peck.

WOOD BORER.

Larvæ common in wood of living Yellow Locust trees, also Oaks. Very injurious to wood.

Adults emerging June 13. Larvæ collected June 27.
Wood and Monongalia counties

474. **Cossus** sp.

Larvæ common in wood of living Oak trees. Very injurious to wood. Causes large black holes one-half to one inch in diameter.

Family NOCTUIDÆ.

475. **Hydrœcia nitula**, Gn.

Larvæ boring in tender sprouts of Yellow Locust and Maple.

Family GEOMETRIDÆ.

476. **Ennomos magnarius**, Gn.
Larvæ and Pupæ on Maple.

Adults bred October 3.
Monongalia county.

Family TORTRICIDÆ.

477. **Lophoderus politana**, How.
PINE TUBE BUILDER.
Larvæ feeds on Pine leaves. Forms tubes of the stumps of green leaves.

Family GRAPHOLITHIDÆ.

478. **Retinia Comstockiana**, Fern.
Larvæ bore in twigs and small branches on living Pitch Pine trees. Causes balls of turpentine to form where they enter the bark.

Larvæ June 27.
Wood county.

479. Ecdytolopha insiticiana, Zell.
LOCUST TWIG BORER.
Larvæ bore into the tender sprouts and twigs of Yellow Locust. Very injurious to young trees. Common.

Larvæ June 13; August 10; October 3.
Monongalia county.

Family GELECHIIDÆ.

480. **Depressaria robiniella** (?), Pack.
Larvæ feeding on Yellow Locust leaves.

Larvæ July 30.
Wayne county.

481. Gelechia pinifoliella, Cham.
PINE LEAF MINER.
Common in Yellow and Pitch Pine leaves. Causes tips of leaves to turn brown.

Pupæ May 20. Bred adults July 13.
Hampshire, Hardy, Grant and Wood counties.

Family LITHOCOLLETIDÆ

482. **Lithocolletes robiniella**, Clem.
LOCUST LEAF MINER.
Larvæ form blisters on under side of Yellow Locust leaves. Common.

Larvæ August 8.
Monongalia county.

Order DIPTERA; Family CECIDOMYIDÆ

483. **Diplosia resinicola**, O. S.
Observed.

484. Diplosia pini-rigidæ, Pack.

485. **Cecidomyia robinæ**, Hald.
LOCUST-LEAF GALL-FLY.
Common and destructive Infests tender leaves causing galls on their edges.

Adults bred. Larvæ June, July.
Wood, Jackson, Hancock and Monongalia counties.

Family SYNPHIDÆ.

486. **Undetermined sp. a.**
Larvæ feeding on aphids on Yellow Locust.

Larvæ August 8.
Monongalia county.

487. **Undetermined sp. b.**
Larvæ feeding on aphids on Yellow Locust.

Larvæ October 4.
Monongalia county.

Family TACHINIDÆ.

488. **Tachina orgyia**, Twns.
Attacks larvæ and pupæ of *Orgyia leucostigma* on Maple, Yellow Locust, etc. Common.

Adults bred October 2. November 5.

489. **Undetermined sp. a**

Chrysalids frequent in mines of *Monohamus scutellatus* in White Pine.

Chrysalids collected May 5.
Pendleton county.

490. **Undetermined sp. b.**

Attacks *Thanasimus dubius* adults on Pine.

Bred larvæ August 12. Pupæ August 13. Adult emerged August 28.
Monongalia county.

Family Anthomyiidæ.

491. **Anthomyia sp.**

Adult feeding on aphids on Yellow Locust leaves.

Adults October 3.
Monongalia county.

UNDETERMINED.

492. **Dipterous sp. a.**

Bred from larvæ taken in mines of *Polygraphus rufipennis* larvæ under Spruce bark.

Adult bred. Pupæ May 8. Larvæ March, August and September.
Randolph, Grant and Tucker counties.

493. **Dipterous sp. b.**

Larvae and cocoons common in mines of *Polygraphus rufipennis* larvae in Spruce bark. Common.

Adults bred April. Larvae and cocoons March, May, June, August, September.
Grant, Tucker and Randolph counties.

494. **Dipterous larvæ sp. c.**

In mines of *Polygraphus rufipennis* in Spruce bark.

Larvae March 29.
Tucker county.

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